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| 10/663,027 | 09/15/2003 | Gedon Rosner | P16576 | 2567 |

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| EXAMINER | |
|---|---|
| CHEN, ALAN S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2182 | |

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/663,027 | ROSNER, GEDON | |
| | Examiner | Art Unit | |
| | Alan S. Chen | 2182 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *15 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,8-12,18-30* is/are rejected.

7)☒ Claim(s) *3-7 and 13-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Method, system and article of manufacture for processing packets utilizing descriptor logic".

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 21-30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

3. Claims 21-30 are rejected under 35 U.S.C. 101 because the claims are not limited to tangible embodiments. In view of Applicant's disclosure, specification paragraph 24, the article of manufacture is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., hardware components in which the code is embodied, processed and executed; paragraph 24, "...EEPROMS, ROMS,PROMS,RAMs,DRAMs,SRAMS...) and intangible embodiments (e.g., signals propagating through space, radio waves, infrared signals, and software components in which code is embodied, paragraph 24). As such, the claim is not limited to statutory subject matter and is therefore non-statutory. To overcome this rejection the claims need to be amended to include only the physical computer media and not a transmission media or other intangible or non-functional media.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1,2,8-12,18-22 and 28-30 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat. No. 6,912,602 to Sano et al. (Sano).

6. Per claim 11, Sano discloses a system, comprising: a processor (any of processors in Fig. 1, elements 12A-N); a storage device (Fig. 1, element 24); an I/O device (Fig. 1, element 18, switch transfers to/from SPI and DMA devices); a storage controller (Fig. 1, element 14) for managing access to the storage device (manages/interfaces memory, element 24 with rest of system, element 10), at least one program (procedures/methods shown in Figs. 8-10 require processor cycles/computation) that when executed by the processor performs (i) maintain information indicating a first buffer and second buffer for use with each descriptor (Fig. 5, elements 86 and 92 are buffers for each descriptor received from the Interconnect Interface, element 80; Fig. 6 shows the descriptor ring where the control circuits 84 and 90 fetches the descriptors to put in the descriptor buffers, elements 86 and 92), wherein one of the first and second buffers is assigned to the descriptor used by the I/0 device (Column 12, lines 23+, descriptors are put into the descriptor buffer), and wherein the

I/0 device write packets to the buffers assigned to the descriptors buffers assigned to the descriptors (Fig. 5, element 82 receives descriptors from Switch 18 and packets are written temporarily into descriptor buffers 86 and 92; Column 12, lines 20+); (ii) access the first buffer including a packet from the I/0 device (packets are obtained from the first buffer by the control circuits, elements 84 and 90; packets are originally from the switch, element 18 permissible via the switch interface 82), wherein the accessed first buffer is assigned to an accessed descriptor (buffers 86 and 92 are assigned/dedicated descriptors that are accessed by the control circuit, elements 84 and 90 and interconnect interface, element 80); (iii) process the packet in the accessed first buffer (control circuit 84 processes the packet from the descriptor buffer; Column 12, lines 15+); and (iv) if the second buffer assigned to the accessed descriptor is available, then update information for the accessed descriptor to indicate that the second buffer is assigned to the accessed descriptor before completing the processing of the packet in the first buffer (interpreting the second buffer as the descriptor buffer, element 92, this buffer outputs packets to the HT/SPI Interface devices 20A-C shown in Fig. 1, it is certain that existence of a scenario where the Packet DMA of Fig. 5, element 16 is outputting/finished processing packets, so the descriptors are sent out of the descriptor buffer and the descriptor buffer is updated and there are no input packets for storage/processing on the input PDI side, element 40; thus the PDO side, element 42 processes/updates descriptors before the PDI side, element 40 completes any processing).

7. Per claim 12, Sano discloses claim 11, wherein the processor execution further includes where after completing the processing of the packet in the first buffer, indicating that the first buffer is available for assignment to the access descriptor (Fig. 8, step 124 shows packet data/descriptor finished processing from the steps prior to step 124 and transmits the descriptor out of the PDI, thus making available another address/slot in the descriptor buffer for assignment descriptor).

8. Per claim 18, Sano discloses claim 11, wherein Sano further discloses that an interrupt, INT bit, is generated/used packet DMA circuit when descriptor is finished being written/processed (Column 15, lines 1-6).

9. Per claim 19, Sano discloses claim 11, wherein there are two buffers available for each descriptor (elements 86 and 92, each descriptor can be inbound or outbound).

10. Per claim 20, Sano discloses claim 11, wherein there are software and hardware elements that make up the logic to processing the descriptor (Fig. 5, element 84 and 90 is a hardware circuit for the descriptor, wherein 96A and B show software registers for the descriptor).

11. Claims 1,2,8-10,21,22 and 28-30 are substantially similar to claims 11,12 and 18-20, and therefore the rejections for claim 11,12 and 18-20 is applied accordingly.

***Allowable Subject Matter***

12. Claims 3-7 and 13-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is the statement of reasons for the indication of allowable subject matter: The prior art disclosed by the applicant and cited by the Examiner fail to teach or suggest, alone or in combination, ***all*** the limitations of the independent claim(s) (claims 1 and 11), particularly the condition where the second buffer that is assigned to a descriptor is unavailable, then copying the packet resident in the first buffer to a temporary buffer to process and updating the corresponding descriptor information (claims 3-6 and 13-16); the processing of the packet in the first buffer uses a protocol driver, the protocol driver spawning/calling needed protocol threads/functions for an operation (claims 7 and 17).

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patents and patent related publications are cited in the Notice of References Cited (Form PTO-892) attached to this action to further show the state of the art with respect to multiple buffers for descriptor assignment.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan S. Chen whose telephone number is 571-272-4143. The examiner can normally be reached on M-F 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ASC
02/14/2006

KIM HUYNH
SUPERVISORY PATENT EXAMINER
2/15/06